

What is claimed is:

1. An electric power steering system, comprising:

- a steering wheel in operable communication with a mechanical linkage;
- a steering shaft in operable communication with the mechanical linkage,

and in operable communication with at least one road wheel;

- a first transmission in operable communication with the steering shaft;
- a unidirectional electric motor in operable communication with the first transmission;

wherein the electric power steering system is configured such that when the steering wheel is turned in a first direction, the motor's power is transmitted in the first direction to the steering shaft, and when the steering wheel is turned in a second direction, the motor's power is transmitted in the second direction to the steering shaft.

2. The electric power steering system of claim 1, wherein the unidirectional motor is configured to operate using a constant power source.

3. The electric power steering system of claim 1, further comprising:

- a second transmission in operable communication with the steering shaft and in operable communication with the motor; and

wherein the electric power steering system is further configured such that when the steering wheel is turned in a first direction, the motor transmits a power assist in the first direction to the steering shaft via the first transmission, and when the steering wheel is turned in a second direction, the motor transmits a power assist in the second direction to the steering shaft via the second transmission.

4. The electric power steering system of claim 3,  
wherein the first transmission comprises:  
a first flywheel in rotationally operable communication  
with the steering shaft;  
a first clutch in operable communication with the steering  
shaft and configured to transmit rotative energy from the first flywheel to the  
steering shaft; and  
wherein the second transmission comprises:  
a second flywheel in rotationally operable  
communication with the steering shaft;  
a second clutch in operable communication with the  
steering shaft and configured to transmit rotative energy from the second  
flywheel to the steering shaft; and  
wherein the first flywheel is configured to rotate in an opposite  
direction from the second flywheel.

5. The electric power steering system of claim 3,  
wherein the first transmission comprises:  
a first sun gear;  
a first planet gear in operable communication with the  
first sun gear;  
a first ring gear in operable communication with the first  
planet gear;  
a steering shaft sleeve in operable communication with  
the steering shaft;  
a first clutch in operable communication with the first  
ring gear and the steering shaft sleeve and configured to transmit rotative energy  
from the first ring gear to the steering shaft sleeve; and  
wherein the second transmission comprises:  
a second sun gear;  
a second planet gear in operable communication with the  
second sun gear;  
a second ring gear in operable communication with the

second planet gear;

a steering shaft sleeve in operable communication with the steering shaft; and

a second clutch in operable communication with the second ring gear and the steering shaft sleeve and configured to transmit rotative energy from the second ring gear to the steering shaft sleeve.

6. The electric power steering system of claim 1, further comprising:

a driven disk in operable communication with the steering shaft;

a first driver disk in operable communication with the motor;

a second driver disk in operable communication with the motor;

a driver linkage in operable communication with the mechanical linkage; and

wherein the driver linkage is configured such that when the steering wheel is turned in a first direction, the driver linkage causes the first driver disk to contact the driven disk thereby turning the driven disk in a first direction and providing a power assist in the first direction to the steering shaft, and when the steering wheel is turned in a second direction, the driver linkage causes the second driver disk to contact the driven disk thereby turning the driven disk in a second direction and providing a power assist in the second direction to the steering shaft.

7. The electric power steering system of claim 1, further comprising:  
a driven body in operable communication with a driven gear;  
the driven gear in operable communication with the steering shaft;  
a driver body in operable communication with the motor and in operable communication with the driven body;  
a driver linkage in operable communication with the mechanical linkage and the driver body; and

wherein the driver linkage is configured such that when the steering wheel is turned in a first direction, the driver linkage causes the driver body to assume a first contact angle that is not perpendicular to the driven body and causes the driven body to rotate in a direction that rotates the driven gear in a first direction thereby providing a power assist in the first direction to the steering shaft, and when the steering wheel is turned in a second direction, the driver linkage causes the driver body to assume a second contact angle that is not perpendicular to the driven body and causes the driven body to rotate in a direction that rotates the driven gear in a second direction thereby providing a power assist in the second direction to the steering shaft.

8. The electric power steering system of claim 7, wherein the driven body is ovoidal in shape.

9. The electric power steering system of claim 7, wherein the driven body is spherical in shape.

10. The electric power steering system of claim 7, wherein the driven body is semispherical in shape.

11. The electric power steering system of claim 7, wherein the driver body is ovoidal in shape.

12. The electric power steering system of claim 7, wherein the driver body is spherical in shape.

13. The electric power steering system of claim 7, wherein the driver body is semispherical in shape.

14. The electric power steering system of claim 7, wherein the driven body comprises a worm gear that is in operable communication with the driven gear.

15. The electric power steering system of claim 1, wherein the mechanical linkage comprises:

a torsion bar.

16. The electric power steering system of claim 1, wherein the mechanical linkage comprises:

a cam.

17. The electric power steering system of claim 1, wherein the mechanical linkage comprises:

a ball in a helical groove.

18. The electric power steering system of claim 1, wherein the mechanical linkage comprises:

a 4-bar linkage.

19. The electric power steering system of claim 1, wherein the mechanical linkage comprises:

a ball screw.

20. An electric power steering system, comprising:  
a steering wheel in operable communication with at least one road wheel;  
a first transmission in operable communication with the at least one road wheel;  
a unidirectional electric motor in operable communication with the first transmission;  
wherein the electric power steering system is configured such that when the steering wheel is turned in a first direction, the motor's power is transmitted in the first direction to the at least one road wheel, and when the steering wheel is turned in a second direction, the motor's power is transmitted in the second direction to at least one road wheel.
21. The electric power steering system of claim 20, further comprising: a torsion bar in operable communication with the steering wheel and the at least one road wheel; and wherein the electric power steering system is configured such that when the steering wheel is turned, the transmitted motor's power is proportional to a windup of the torsion bar.
22. The electric power steering system of claim 20, further comprising:  
a second transmission in operable communication with the at least one road wheel and in operable communication with the motor; and  
wherein the electric power steering system is further configured such that when the steering wheel is turned in a first direction, the motor transmits a power assist in the first direction to the steering shaft via the first transmission, and when the steering wheel is turned in a second direction, the motor transmits a power assist in the second direction to the steering shaft via the second transmission.

23. A method for providing power assist for an electric power steering system, the method comprising:
- rotating a first body in a first direction with a unidirectional motor;
  - rotating a second body in a second direction with the unidirectional motor;
  - providing a power assist from the first body when a steering wheel is turned in a first direction; and
  - providing a power assist from the second body when a steering wheel is turned in a second direction.
24. A method for providing power assist for an electric power steering system, the method comprising:
- rotating a first body in a first direction with a unidirectional motor;
  - rotating a second body in a first direction with a unidirectional motor;
  - contacting a driven disk with the first body in order to turn the driven disk in a second direction when a steering wheel is turned in a second direction thereby providing a power assist to a steering shaft in the second direction; and
  - contacting a driven disk with the second body in order to turn the driven disk in a third direction when a steering wheel is turned in a third direction thereby providing a power assist to the steering shaft in the third direction.
25. A method for providing power assist for an electric power steering system, the method comprising:
- rotating a driver body in a first direction with a unidirectional motor;
  - changing the contact angle between the driver body and a driven body such that the driver body turns the driven body in a second direction when a steering wheel is turned in a fourth direction thereby providing a power assist to a steering shaft in the fourth direction; and
  - changing the contact angle between the driver body and a driven body such that the driver body turns the driven body in a third direction when a steering wheel is turned in a fifth direction thereby providing a power assist to a steering shaft in the fifth direction.